

Appl. No. 10/797,726
Amdt. dated December 8, 2004
Preliminary Amendment

Amendments to the Specification:

Please replace the Title of the application at page 1, line 1 as follows:

A SYSTEM CORE FOR TRANSFERRING DATA BETWEEN AN
EXTERNAL DEVICE AND MEMORY

Please amend the paragraph at page 1, line 26 as follows:

To this end, the present invention addresses a host of improved aspects of this architecture and a presently preferred instruction set for a variety of implementations of this architecture as described in greater detail below. Among the advantages of the improved ManArray architecture and instruction set described herein are that the instruction syntax is regular. Because of this regularity, it is relatively easy to construct a database for the instruction set. With the regular syntax and with the instruction set represented in database form, developers can readily create tools, such as assemblers, disassemblers, simulators or test case generators using the instruction database. Another aspect of the present invention is that the syntax allows for the generation of self-checking codes from parameterized test vectors. As addressed further below, parameterized test case generation greatly simplifies maintenance. It is also advantageous that parameterization can be fairly easily mapped.

A system core having an internal memory which transfers data from an external device to the internal memory is described. To this end, the system core includes a processor, a direct memory access (DMA) controller, an instruction memory and an internal memory. The instruction memory contains processor instructions and DMA

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instructions. The DMA controller fetches DMA instructions from the instruction memory. The DMA controller executes the fetched DMA instructions and thus populates the internal memory with data from the external device. The processor then operates on the data found in the internal memory. By having a DMA controller which can fetch and execute DMA instructions, the present invention advantageously provides a flexible system core such as providing the system core the feature of populating internal memory according to a particular pattern. Similarly, the system core has the flexibility to read from internal memory and transfer contents of internal memory to external memory according to a particular pattern.

Please amend the Abstract of the application at page 544, line 2 as follows:

~~Details of a highly cost-effective and efficient implementation of a manifold array (ManArray) architecture and instruction syntax for use therewith are described herein. Various aspects of this approach include the regularity of the syntax, the relative ease with which the instruction set can be represented in database form, the ready ability with which tools can be created, the ready generation of self checking codes and parameterized testcases. Parameterizations can be fairly easily mapped and system maintenance is significantly simplified.~~

A system core having an internal memory which transfers data from an external device to the internal memory is described. To this end, the system core includes a processor, a direct memory access (DMA) controller, an instruction memory and a plurality of memories. The instruction memory contains processor instructions and DMA instructions. The DMA controller fetches DMA instructions from the instruction

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memory. The DMA controller executes the fetched DMA instructions and thus populates the plurality of memories with data from the external device. The processor then operates on the data found in the populated memories.